



Anthrax

Revision 12/14/11



Missouri Dept of Health and Senior Services (800) 392-0272 (24 hours)
State Public Health Laboratory (573) 751-3334 or (573) 522-1444

Remember that these samples may be highly infectious! Extreme caution should be taken in collecting, preparing for shipment and transporting any material suspected of being contaminated with a biological agent.

Specimen collection and transport:

Clinical:

Cutaneous anthrax: Sterile rayon or dacron swabs should be saturated in vesicular fluid from a previously unopened vesicle and placed into sterile, screw-cap tubes for transport to the lab. If illness is in eschar stage, rotate a sterile dacron or rayon swab under the edge of the eschar and place swab in sterile tube. Specimens should be kept cold, unless the volume collected is small enough to dry on the swab.

Inhalational anthrax: Suitable specimens include: pleural fluid, pleural tissue (fresh or frozen), CSF, transtracheal aspirates, blood collected in EDTA and sputum. Please note that blood cultures may not be positive until late in the illness, i.e. 2 to 8 days post-exposure and inhalation anthrax does not usually stimulate the production of sputum. Samples should be kept cold and transported to the laboratory as soon as possible.

Gastrointestinal anthrax: Stool samples are suitable specimens. Samples should be kept cold and transported to the laboratory as soon as possible.

Reference cultures:

Any large Gram-positive rods isolated from clinical or environmental samples may also be submitted to the MSPHL for confirmation/ identification. Cultures may be sent on any slant that will support the growth of bacillus, such as blood, chocolate or TSA.

Environmental: (includes any sample NOT from clinical sources)

NOTE: Environmental samples will only be accepted from a Law enforcement agency and the FBI must be involved. They can be no longer than 12 inches by 36 inches (including packaging). For larger samples, consult the Missouri State Public Health Laboratory (MSPHL) before submitting.

Samples may include paper, water, dry swab samples from air vents or other surfaces, powders, soil or other environmental samples. Only liquid samples need to be kept cold. All other samples can be transported at room temperature.

In individual situations environmental specimens received in the MSPHL must be accompanied by paper documentation, which includes the following:

1. Agency name and telephone number and a contact person for the submitting law enforcement organization along with chain of custody papers. ([See Health Advisory March 30, 2009](#), PDF format, requires Adobe Acrobat Reader [available here](#))
2. Paper documentation that the sample has been "prescreened" by a FBI-certified bomb or explosives technician and a certified Haz-Mat team.

The sample being submitted should only be the suspect material. Additional items from the area that are suspected of being exposed should be bagged up and held until testing is complete. For example, if a suspicious package/letter is received in a post office, only the suspicious package/letter should be brought to the MSPHL for testing. All accompanying pieces of mail and the mail bag or letter tray should be bagged in plastic until testing of the suspicious items is completed. Arrangements for where and how that material will be held are the responsibility of the investigating officials.

The specimen must be transported in a container that we are able to open within the safety cabinet. This would include plastic bags or other devices that can be easily opened. This does not include sealed plastic buckets, etc.

The MSPHL is unable to accommodate used Haz-mat gear or other collection gear. If the Haz-mat team has collected the specimen they should package their gear in a separate container from the specimen. Disposal of Haz-mat gear is the responsibility of the Haz-mat team.

Testing available:

Culture, isolate identification, and PCR.

IMPORTANT NOTE: Biological agent field test kits are, at this time, not sufficiently accurate for on-scene decision making in the field. [Click here](#) to see the United States Department Health and Human Services statement regarding these devices.
(http://www.dhss.state.mo.us/BT_Response/DHSSAnthraxAssayStatement.doc)

Reporting:

**All reporting times are the minimum time.
Any individual specimen could take longer.**

Bacillus anthracis is not fastidious and may grow in 6-24 hours from clinical or environmental specimens. PCR can be performed on isolates upon receipt at the MSPHL, with results in 1-6 hours.

A specimen could be reported "presumptive positive" in 4-6 hours with complete identification and positive confirmation at 72 hours.

For raw clinical specimens a "presumptive negative" could be reported in as little as 4-6 hours. However, clinical specimens are routinely held for a total of 48 hours before a final negative report is issued.

For environmental specimens tested for Anthrax alone, negatives could be reported in 24 hours if there is no suspicious growth. However, any suspicious growth would need to be investigated and could delay negative report.